

ABSTRACT

A waveguide diplexing and filtering device for separating two polarities of one frequency band and at least one polarity of another frequency band of an electromagnetic or microwave signal. The waveguide diplexing and filtering device of the present invention provides an enclosure having a longitudinal axis with a common channel formed in the enclosure and terminating at a common port. The common channel and the common port are adapted to receive the electromagnetic or microwave signal. A side channel is formed in the enclosure and terminates at a side port. The side channel is in communication with a common channel, and the side channel is adapted to cut off the lower frequency of the microwave signal and allow the upper frequency of the microwave signal to propagate through the side channel to the side port. The main channel is formed in the enclosure and terminates at a main port and is in communication with the common channel. At least one waveguide iris element is mounted within the main channel and is adapted to filter the upper frequency of the microwave signal and allow the two polarities of the lower frequency of the microwave signal to pass through the iris element and propagate along the main channel to the main port.